

What is claimed is:

- 1 1. A method for repairing a photomask by removing a residual defect in the
2 photomask, the method comprising removing the defect area by gallium chelation with a water-
3 soluble amine polymer.
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- 2 2. The method as recited in claim 1, wherein said defect is causative of a partial
3 deterioration in light transmittance of the photomask in its gallium-implanted defect area and an
4 area around the gallium-implanted defect area to restore the light transmittance of said areas in
5 the photomask.
- 1 3. The method as recited in claim 1, wherein, in the repair of the photomask, assist
2 gas enhances the etching simultaneously with the focused ion beam irradiation.
- 1 4. The method as recited in claim 1, wherein the photomask is a phase shift
2 photomask.
- 1 5. The method as recited in claim 1, wherein the pH of the defect area to be treated
2 is about 1-6.
- 1 6. The method as recited in claim 5, wherein the pH of the defect area to be treated
2 is about 4.
- 1 7. The method as recited in claim 1, wherein the molecular weight of the water-
2 soluble amine polymer is about 23,000.